

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

In re Patent Application of:
Lee et al.

Application No.: 10/765,061

Confirmation No.: 2327

Filed: January 28, 2004

Art Unit: 2625

For: **METHOD OF IMAGE DITHERING
PROCESS FOR DETECTING PHOTO AND
CHARACTER AUTOMATICALLY**

Examiner: M. T. Riley

APPEAL BRIEF

MS Appeal Brief - Patents
Commissioner for Patents
P.O. Box 1450
Alexandria, VA 22313-1450

Sir:

As required under § 41.37(a), this brief is filed within two months of the Notice of Appeal filed in this case on August 25, 2010, and is in furtherance of said Notice of Appeal.

The fees required under § 41.20(b)(2) are dealt with in the accompanying TRANSMITTAL OF APPEAL BRIEF.

INTRODUCTION–TABLE OF CONTENTS

This brief contains items under the following headings as required by 37 C.F.R.

§ 41.37 and M.P.E.P. § 1205.2:

I.	REAL PARTY IN INTEREST	1
II.	RELATED APPEALS AND INTERFERENCES	1
III.	STATUS OF CLAIMS.....	1
	A. Total Number of Claims in Application	1
	B. Current Status of Claims	1
	C. Claims on Appeal	1
IV.	STATUS OF AMENDMENTS.....	2
V.	SUMMARY OF CLAIMED SUBJECT MATTER	2
	A. Overview of Appellants' Technology.....	2
	B. Independent Claims on Appeal	4
	1. Independent Claim 5.....	4
	2. Independent Claim 25.....	5
	3. Independent Claim 31.....	6
VI.	GROUND OF REJECTION TO BE REVIEWED ON APPEAL.....	7
	A. The Examiner's Rejections.....	7
	B. The Issues on Appeal.....	8
VII.	ARGUMENT.....	8
	A. Legal Standard for Obviousness	8
	B. Overview of the Applied References	9
	1. U.S. Patent No. 6,556,711 (Koga).....	10
	2. U.S. Patent No. 4,996,603 (Kanemitsu).....	10
	3. U.S. Patent No. 5,987,221 (Bearss)	10
	C. Discussion of the Examiner's Improper Rejections.....	10
	1. The Rejection of Claims 5, 6, 25–29, 31, 32, and 34–39 under 35 U.S.C. § 103(a) over the Combination of Koga and Kanemitsu is Improper and Should Be Reversed.....	11

a.	The Examiner has Failed to Show how the Combination of Koga and Kanemitsu Discloses or Suggests all of the Recited Features of Claims 5, 6, 25–29, 31, 32, and 34–39, and has Thereby Failed to Establish a <i>Prima Facie</i> Case of Obviousness	11
i.	Independent Claim 5	12
ii.	Independent Claim 25	15
iii.	Independent Claim 31	17
b.	The Examiner has Failed to Show that There is an Apparent Rational Reason to Combine Koga and Kanemitsu, and has Thereby Failed to Establish a <i>Prima Facie</i> Case of Obviousness	19
2.	The Rejection of Claim 7 Under 35 U.S.C. § 103(a) over the Combination of Koga, Kanemitsu, and Bearss is Improper	20
VIII.	CONCLUSION	21
	CLAIMS APPENDIX	24
	EVIDENCE APPENDIX	30
	RELATED PROCEEDINGS APPENDIX.....	31

I. REAL PARTY IN INTEREST

The real party in interest for this appeal is Transpacific Optics LLC.

II. RELATED APPEALS AND INTERFERENCES

Neither Appellant, Appellant's legal representative, nor the above-identified Assignee are aware of other appeals, interferences, or judicial proceedings that are related to, will directly affect or be directly affected by, or have a bearing on the Board's decision in this appeal.

III. STATUS OF CLAIMS

A. Total Number of Claims in Application

There are 16 claims pending in the application. The text of these claims is set forth below in the Claim Appendix.

B. Current Status of Claims

1. Claims pending: 5–7, 25–29, 31, 32, and 34–39
2. Claims allowed: None
3. Claims rejected: 5–7, 25–29, 31, 32, and 34–39
4. Claims cancelled: 1–4, 8–24, 30, and 33
5. Claims withdrawn: None

C. Claims on Appeal

The claims on appeal are claims 5–7, 25–29, 31, 32, and 34–39.

IV. STATUS OF AMENDMENTS

No claim amendments have been filed subsequent to the Final Office Action mailed on June 11, 2010.

V. SUMMARY OF CLAIMED SUBJECT MATTER

A. Overview of Appellants' Technology

Appellants' technology is directed generally to methods of automatically detecting images and text in a document and processing the images and text separately. Generally described, in some examples, Appellants' technique is directed to choosing a first background color from a master copy, separating the content of the master copy into images and text based on the first background color. (Specification at ¶ [0011].) The Appellants' technique also includes condensing the master copy based on the first background color, and cutting the master copy vertically and transversely into several individual areas based on the first background color. (Specification at ¶ [0011].) As shown in Figure 3 of Appellants' Specification (reproduced below), Appellants' techniques include separating text from image, processing the text through a line art process, processing the images through a half-tone process, then combining the text and images back together.

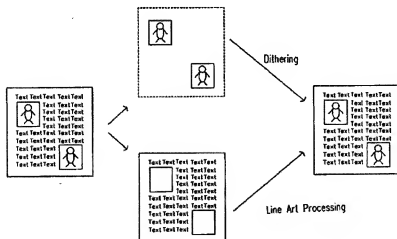


Figure 3

Referring to Figure 4 of Appellants' Specification (reproduced below), the Appellants' technique includes transversely and vertically dividing the condensed copy into a plurality of areas (e.g., four equally spaced rectangular areas 1-4.) For each of these areas, a new background color may be chosen.

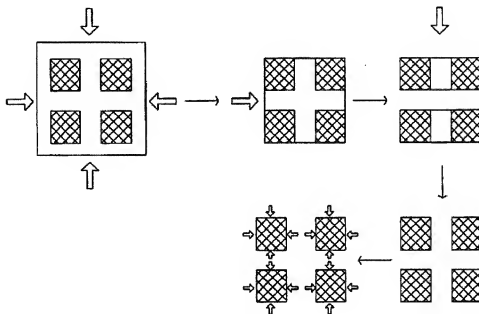


Figure 4

For example, a first area may include a blue background, and a second area may include a red background. The new background color is then used for determining whether the individual areas contain images or text. If an individual area contains images, then that particular area (including the background of the area and the images) is marked as an image area. If an individual area contains text, then that particular area (including the background of the area and the text) is marked as a text area. If a determination that an individual area contains images or text is not made, then the appellants' technique provides for recursively condensing, dividing, and identifying sub-areas until each of the areas have been identified as an image area or a text area, or marking the individual area as an image area. Accordingly, an individual area that cannot be identified as containing image or text may be marked as an image area and processed accordingly (e.g., processed as an image, which may be processed using a higher resolution or bit depth).

B. Independent Claims on Appeal

Each independent claim being appealed is paraphrased below, with citations¹ to the corresponding portions of the Specification and drawings as required by 37 C.F.R. § 41.37(c)(1)(v). These citations are provided in order to illustrate specific examples and embodiments of the recited claim language, and are not intended to limit the claims.

1. Independent Claim 5

Independent claim 5 is directed to a method, performed by a device having a processor, of detecting images and text in a master copy. (Specification at ¶¶ [0004]–[0009].) The method includes choosing a first background color from the master copy. The master copy includes an image portion, a text portion, and an empty portion containing neither an image nor text. (Specification at Figure 2, element 21, Figures 3 and 4; ¶¶ [0009], [0011], [0028], [0029].) The method also includes condensing the master copy based, at least in part, on the first background color by omitting the empty portion to create a condensed copy of the master copy. The condensed copy contains the image portion and the text portion. (Specification at ¶¶ [0011], [0030], [0039]; Figure 2, element 22; Figure 4.)

The method also includes transversely and vertically dividing the entirety of the condensed copy into a plurality of first areas. (Specification at Figure 2, elements 23, 24; Figure 4; and ¶¶ [0011], [0031], [0032], [0039].) For each of the first areas, the method includes choosing a second background color from the first area and determining whether the first area includes the image portion or the text portion based at least in part on the second background color. (Specification at Figure 2, elements 26 and 27; and ¶ [0034] and [0035].) If the first area includes the image portion, the method also includes marking the first area as an image area. (Specification at Figure 2, element 29, ¶ [0035].) If the first area includes the text portion, the method includes marking the first area as a text area. (Specification at Figure 2, element 28,

¹ The citations herein refer to Published Patent Application No. US 2005/0162702, published on July 28, 2005.

¶¶ [0036], [0037].) If a determination that the first area includes the image portion or the text portion is not made, then the method includes either marking the first area as an image area (Specification at Figure 2, branch between elements 27 and 22; ¶ [0039]), or replacing the first background color with the second background color. (Specification at ¶ [0037].) The method further includes condensing the first area based at least in part on the second background color (Specification at ¶ [0037]), and transversely and vertically dividing the first area into a plurality of second areas. (Specification at Figure 2, elements 23, 24; ¶¶ [0038], [0039].)

For each of the second areas, the method further includes determining whether the second area includes the image portion or the text portion based at least in part on the second background color. If the second area includes an image portion, the method includes marking the second area as an image area. If the second area includes a text portion, the method includes marking the second area as a text area. (Specification at Figure 2; ¶¶ [0011], [0037], [0039].) At least one first area is marked as an image area in response to the determination that the at least one first area includes the image portion or the text portion not being made. (Specification at Figure 2, branch between elements 27 and 22; ¶ [0039].) The method further includes processing, by the device, the image areas with halftone processing, and processing, by the device, the text areas with line art processing. (Specification at ¶¶ [0009], [0011].) The method still further includes outputting the processed images and processed text as a whole. (Specification at Figure 3; ¶ [0026].)

2. Independent Claim 25

Independent claim 25 is directed to a method, performed by a device having a processor, for identifying image areas and text areas in a document. (Specification at ¶¶ [0004]–[0009].) The method includes choosing a document background color based on the document. (Specification at Figure 2, element 21; Figures 3 and 4; and ¶¶ [0009], [0011], [0028], [0029].) The method also includes creating a condensed document from the document by omitting areas based at least in part on the chosen document background color. (Specification at Figure 2, element 22; Figure 4; and

¶¶ [0011], [0030], [0039].) The method includes dividing the condensed document into a plurality of individual areas. (Specification at Figure 2, elements 23, 24; Figure 4; ¶¶ [0011], [0031], [0032], [0039].)

For each of the individual areas, the method includes choosing an area background color based on the individual area. (Specification at Figure 2, element 26; and ¶ [0034].) The method also includes determining if the individual area contains image or text based at least in part on the chosen area background color. (Specification at Figure 2, element 27; and ¶ [0035].) If the determination is that the individual area contains image, marking the individual area as an image area. (Specification at Figure 2, element 29, and ¶ [0035].) If the determination is that the individual area contains text, the method includes marking the individual area as a text area. (Specification at Figure 2, element 28, and ¶¶ [0036], [0037].) If the determination that the individual area contains image or text is not made, the method includes performing an additional action. (Specification at Figure 2, branch between elements 27 and 22; and ¶ [0039].)

For at least a first individual area for which the determination that the first individual area contains image or text is not made, the method includes performing an additional action includes marking the first individual area as an image area. (Specification at Figure 2; ¶¶ [0011], [0037], [0039].) The method further includes processing, by the device, individual areas marked as image areas with halftone processing, and processing, by the device, individual areas marked as text areas with line art processing. (Specification at ¶¶ [0009], [0011].)

3. Independent Claim 31

Independent claim 31 is directed to a method, performed by a device having a processor, for identifying an image area and a text area in an original document. (Specification at ¶¶ [0004]–[0009].) The method includes choosing a document background color based on the original document. (Specification at Figure 2, element 21; Figures 3 and 4; and ¶¶ [0009], [0011], [0028], [0029].) The method also includes creating a condensed document from the original document by omitting areas based at

least in part on the chosen document background color. (Specification at Figure 2 element 22; Figure 4; and ¶¶ [0011], [0030], [0039].) The method also includes dividing the condensed document into at least a first area, a second area, and a third area (Specification at Figure 2, elements 23, 24; Figure 4; and ¶¶ [0011], [0031], [0032], [0039]), detecting a first area background color of the first area (Specification at Figure 2, element 26; and ¶ [0034]), and marking the first area as a first image area based at least in part on the detected first area background color. The first area contains at least an image and the first area background color. (Specification at Figure 2, element 29, and ¶ [0035].) The method further includes detecting a second area background color of the second area. (Specification at Figure 2, element 26; and ¶ [0034].) The method also includes marking the second area as a text area based at least in part on the detected second area background color. The second area contains at least text and the second area background color. (Specification at Figure 2, element 28, and ¶¶ [0036], [0037].) The method further includes determining if the third area contains at least an image or at least text. (Specification at Figure 2, element 27; and ¶ [0035].)

The method also includes if the determination that the third area contains at least an image or at least text is not made, marking the third area as a second image area. (Specification at Figure 2, branch between elements 27 and 22; ¶ [0039].) The method includes processing, by the device, the first and second image areas with halftone processing and processing, by the device, the text area with line art processing. (Specification at ¶¶ [0009], [0011].) The method includes outputting the processed images and processed text as a whole. (Specification at Figure 3; ¶ [0026].)

VI. GROUND'S OF REJECTION TO BE REVIEWED ON APPEAL

A. The Examiner's Rejections

1. The Examiner rejected claims 5–7, 25–29, 31, 32, and 34–39 under 35 U.S.C. § 103(a) over the combination of U.S. Patent No. 6,556,711 to Koga et al. ("Koga") and U.S. Patent No. 4,996,603 to Kanemitsu et al. ("Kanemitsu").

2. The Examiner rejected claim 7 over the combination of Koga, Kanemitsu, and U.S. Patent No. 5,987,221 to Bearss ("Bearss").

B. The Issues on Appeal

1. Whether the Examiner erred in rejecting claims 5–7, 25–29, 31, 32, and 34–39 under 35 U.S.C. § 103(a) over the combination of Koga and Kanemitsu where:

- (a) the Examiner failed to show that the applied references, either alone or in combination, disclose or suggest all the claimed features; and
- (b) the Examiner failed to articulate a rational apparent reason to combine the applied references?

2. Whether the Examiner erred in rejecting claim 7 over Koga, Kanemitsu, and Bearss?

VII. ARGUMENT

As explained in detail below, the Examiner's rejections contain significant legal errors and, accordingly, the Examiner's rejections should be reversed. The impropriety of the Examiner's rejections of the pending claims is based, at least in part, on the Examiner's failure to meet the following requirements.

A. Legal Standard for Obviousness

Claims 5–7, 25–29, 31, 32, and 34–39 stand rejected under 35 U.S.C. § 103(a), which provides:

A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

To properly reject claims as obvious, "the examiner bears the initial burden of presenting a *prima facie* case of obviousness." *In re Rijckaert*, 9 F.3d 1531, 1532, 28 U.S.P.Q.2d (BNA) 1955, 1956 (Fed. Cir. 1993). A *prima facie* case of obviousness is founded upon the following factual findings: scope and content of the prior art; differences between the claimed invention and the prior art; level of ordinary skill in the art; and secondary indicia of nonobviousness. *Graham v. John Deere*, 383 U.S. 1, 17–18 (1966). All the claim limitations must be taught or suggested by the prior art. *In re Royka*, 490 F.2d 981, 180 USPQ 580 (CCPA 1974).

To present a *prima facie* case of obviousness, the Examiner must show that "there was an apparent reason to combine the known elements in the fashion claimed by the patent at issue." *KSR Int'l Co. v. Teleflex Inc.*, 550 U.S. 398, 418 (2007). Relevant considerations may include "interrelated teachings of multiple patents; the effects of demands known to the design community or present in the marketplace; and the background knowledge possessed by a person having ordinary skill in the art." *Id.* The Examiner's analysis "should be made explicit." *Id.* "[R]ejections on obviousness grounds cannot be sustained by mere conclusory statements; instead, there must be some articulated reasoning with some rational underpinning to support the legal standard of obviousness" *Id.* (citing *In re Kahn*, 441 F.3d 977, 988 (Fed. Cir. 2006)).

Under the foregoing legal standards, Appellants' invention would not have been obvious. For at least the reasons explained below the Examiner has failed to identify references that disclose or suggest all the elements of pending claims 5–7, 25–29, 31, 32, and 34–39. Furthermore, the Examiner has not identified a rational apparent reason to combine the references in the manner recited in each of Appellants' claims. Therefore, the rejection of claims 5–7, 25–29, 31, 32, and 34–39 under Section 103 should be reversed.

B. Overview of the Applied References

The Examiner rejected the claims based on the following references:

1. U.S. Patent No. 6,556,711 (Koga)

Koga is directed to an image processing apparatus and associated methods, including processing a color image in which image segments having different characteristics are mixed. (Koga, 3:54–58.) Koga discriminates between image-segments such as continuous color tone segments, limited-color character segments, line drawings, limited-color pseudo-half-tone segments, continuous monochromatic tone segments, limited-value character segments, and limited-value pseudo-half-tone segments. (*Id.* at 7:24–41.) An image segment having an image-segment component in a document image is considered to be one delimited by the background. In other words, image segments can be extracted by partitioning an input image at portions delimited by the background. (*Id.* at 7:45–57.)

2. U.S. Patent No. 4,996,603 (Kanemitsu)

Kanemitsu is related to an image processing system for obtaining a binary signal from a multi-level signal read by an image scanner from an original document. (Kanemitsu, Abstract.) For example, Kanemitsu is directed to an image processing system enabling clear reproduction of an original document including mixed characters, ruled lines, and photos. (*Id.* at 2:1–7.)

3. U.S. Patent No. 5,987,221 (Bearss)

Bearss is related to distinguishing text and line art image data from halftone image data for selectively enhanced rendering thereof. (Bearss, 3:50–53.) For example, Bears discloses determining whether an orphan pixel is detected within one or more bounded sampling windows of a bitmap, and processing at least one selected pixel of the bitmap within one or more sampling windows relative to the determining of whether an orphan pixel is detected. (*Id.* at 3:54–59.)

C. Discussion of the Examiner's Improper Rejections

For at least the reasons explained below, the Examiner improperly rejected the pending claims. These rejections should be reversed.

1. The Rejection of Claims 5, 6, 25–29, 31, 32, and 34–39 under 35 U.S.C. § 103(a) over the Combination of Koga and Kanemitsu is Improper and Should Be Reversed
 - a. The Examiner has Failed to Show how the Combination of Koga and Kanemitsu Discloses or Suggests all of the Recited Features of Claims 5, 6, 25–29, 31, 32, and 34–39, and has Thereby Failed to Establish a *Prima Facie* Case of Obviousness

In the Final Office Action mailed June 11, 2010 (the "Final Office Action"), the Examiner rejected claims 5, 6, 25–29, 31, 32, and 34–39 under 35 U.S.C. § 103(a) over the combination of Koga and Kanemitsu. As set forth in detail below, however, the Examiner failed to show how Koga and Kanemitsu together disclose or suggest all of the recited features of these claims, and thereby failed to establish a *prima facie* case of obviousness. In addition, after careful review, the appellant can find no disclosure or suggestion in Koga or Kanemitsu that can support the Examiner's improper rejections. In particular, the Examiner failed to show how Koga and Kanemitsu together disclose or suggest, *inter alia*:

- "for each of the first areas, choosing a second background color from the first area," "determining whether the first area includes the image portion or the text portion based at least in part on the second background color," "if a determination that the first area includes the image portion or the text portion is not made, then either marking the first area as an image area, or replacing the first background color with the second background color" and "for each of the second areas, deterring whether the second area includes the image portion or the text portion based at least in part on the second background color" as recited in independent claim 5;
- "for each of the individual areas, choosing an area background color based on the individual area; determining if the individual area contains image or text based at least in part on the chosen area background color" and "if the determination that the individual area contains image or text is not made,

performing an additional action [including] marking the first individual area as an image area" as recited in independent claim 25; or

- "choosing a document background color based on the original document; marking the first area as a first image area based at least in part on the detected first area background color, the first area containing at least an image and the first area background color" and "if the determination that the third area contains at least an image or at least text is not made, marking the third area as a second image area" as recited in independent claim 31.

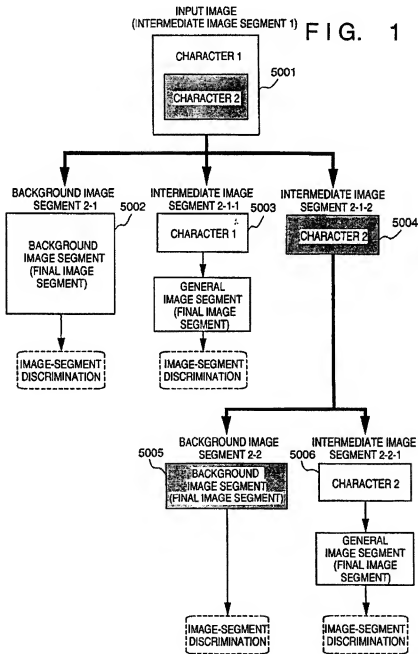
Each of these independent claims is addressed separately herein.

i. Independent Claim 5

Independent claim 5 recites, *inter alia*, "choosing a second background color from the first area" and "determining whether the first area includes the image portion or the text portion based at least in part on the second background color." The Examiner incorrectly relies on Koga to disclose these features. The Examiner cites to Koga at Figure 1, and at column 4, lines 22–25 for disclosing these features of claim 5. (Final Office Action, page 4.) The Examiner is mistaken. Koga does not disclose or suggest "choosing a second background color from the first area" or "determining whether the first area includes the image portion or the text portion based at least in part on the second background color" as recited in independent claim 5.

The objects of Koga are obtained through a method including "an input step of inputting a color image, an extracting step of extracting image segments, which have characteristics different from a background image segment of the inputted color image, from the color image, and a discrimination step of discriminating the characteristics of each image segment extracted at the extraction step." (Koga, 3:60–67.) Koga discloses "first extraction means for extracting an image segment from the reduced image, and second extraction means for extracting an image segment from the input color image using data of the image segment extracted by the first extraction means." (Koga, 4:22–25.)

In relation to Figure 1, Koga explains how image segments are extracted or separated from one another. "A background 5002 is extracted from an input image 5001, then image segments 5003 and 5004, which can be segmented using the background 5002, are extracted." (*Id.* at 7:61-64.) "Image segment components are discriminated with regard to each image segment thus segmented from the input image." (*Id.* at 8:2-4.) Figure 1 of Koga is reproduced below.



The background image segments are extracted from the character image segments. Once extracted, the image segments in the separate, extracted portion are discriminated. Accordingly, Koga does not disclose or suggest "determining whether the first area includes the image portion or the text portion based at least in part on the second background color" as recited in claim 5. Koga cannot use the background color to determine whether the image segment contains text or images, because the background image segment has been extracted or removed from the character image segment before discriminating the image segment. It is only after extracting all background image segments that the image segments are discriminated to determine whether an image segment includes images or character. (Koga, Figure 2, step 3; see also Figure 11 and col. 14, lines 40–60.) In other words, Koga analyzes the image segments independent from the background, and without regard to the background. Accordingly, Koga fails to disclose or suggest at least this claimed feature of claim 5, and the Section 103 rejection of claim 5 should be reversed.

Independent claim 5 also recites "if a determination that the first area includes the image portion or the text portion is not made, then either marking the first area as an image area, or replacing the first background color with the second background color" and "for each of the second areas, determining whether the second area includes the image portion or the text portion based at least in part on the second background color."

The Examiner cites to Koga at Figure 5a, and column 22, lines 39–42 for allegedly disclosing this feature. The Examiner is mistaken. Koga does not disclose or suggest "if a determination that the first area includes the image portion or the text portion is not made, then either marking the first area as an image area, or replacing the first background color with the second background color" and "for each of the second areas, determining whether the second area includes the image portion or the text portion based at least in part on the second background color" as recited in claim 5. Rather, Koga describes that the image segmentation unit 3000 makes a determination of whether an image segment pertains to a character or line drawing or a pseudo-halftone for each image segment. (Koga, 17:3–8.) Because Koga describes affirmatively making such determinations for each image segment, Koga does not teach

or suggest the result if a determination is not made. Koga therefore does not disclose marking an area as an image area if a determination that the area includes the image portion or the text portion is not made. Accordingly, for at least this additional reason, the Section 103 rejection of independent claim 5 should be reversed.

Kanemitsu cannot cure the deficiencies of Koga with respect to claim 5. Kanemitsu is relied upon for disclosing halftone processing. (Final Office Action, page 6.) However, Kanemitsu does not disclose or suggest "for each of the first areas, choosing a second background color from the first area," "determining whether the first area includes the image portion or the text portion based at least in part on the second background color," "if a determination that the first area includes the image portion or the text portion is not made, then either marking the first area as an image area, or replacing the first background color with the second background color" or "for each of the second areas, determining whether the second area includes the image portion or the text portion based at least in part on the second background color" as recited in independent claim 5. Accordingly, the Section 103 rejection of base claim 5 and associated dependent claim 6 should be reversed.

ii. Independent Claim 25

Independent claim 25 recites, *inter alia*, "choosing an area background color based on the individual area" and "determining if the individual area contains image or text based at least in part on the chosen area background color." The Examiner cites to the same portions of Koga as cited above with respect to claim 5 for disclosing these features of claim 25. (Final Office Action, page 7.) Again, however, the Examiner is mistaken. As provided above, Koga does not disclose or suggest "choosing an area background color based on the individual area" and "determining if the individual area contains image or text based at least in part on the chosen area background color" as recited in independent claim 25.

As described above, Koga discloses a method including "an input step of inputting a color image, an extraction step of extracting image segments, which have characteristics different from a background image segment of the inputted color image,

from the color image, and a discrimination step of discriminating the characteristics of each image segment extracted at the extraction step." (Koga, 3:60–67.) Koga discloses "first extraction means for extracting an image segment from the reduced image, and second extraction means for extracting an image segment from the input color image using data of the image segment extracted by the first extraction means." (*Id.* at 4:22–25.) As further provided above, Koga explains how image segments are extracted or separated from one another. "A background 5002 is extracted from an input image 5001, then image segments 5003 and 5004, which can be segmented using the background 5002, are extracted." (*Id.* at 7:61–64.) "Image segment components are discriminated with regard to each image segment thus segmented from the input image." (*Id.* at 8:2–4.)

Koga does not disclose or suggest "determining if the individual area contains image or text based at least in part on the chosen area background color" as recited in claim 25. As explained above, Koga cannot use the background color to determine whether the image segment contains text or images, because the background image segment has been extracted, or removed from the character image segment before discriminating the image segment. It is only after extracting all background image segments that the image segments are discriminated to determine whether an image segment includes images or character. (Koga, Figure 2, step 3; see also Figure 11 and col. 14, lines 40–60.) Accordingly, Koga fails to disclose or suggest at least this claimed feature of claim 25, and the Section 103 rejection of claim 25 should be reversed.

Independent claim 25 also recites "if the determination that the individual area contains image or text is not made, performing an additional action; for at least a first individual area for which the determination that the first individual area contains image or text is not made, performing an additional action includes marking the first individual area as an image area."

The Examiner is mistaken. Koga does not disclose or suggest "if the determination that the individual area contains image or text is not made . . . marking the first individual area as an image area" as recited in claim 25. Rather, as explained

previously, Koga describes that the image segmentation unit 3000 affirmatively makes a determination of whether an image segment pertains to a character or line drawing or a pseudo-half-tone for each image segment. (Koga, 17:3-8.) Because Koga describes actively, positively making such determinations for each image segment, Koga does not teach or suggest marking an area as an image area if a determination that the area includes the image portion or the text portion is not made. Accordingly, for at least this additional reason, the Section 103 rejection of independent claim 25 should be reversed.

Kanemitsu cannot cure the deficiencies of Koga with respect to claim 25. Kanemitsu is relied upon merely for disclosing halftone processing. (Final Office Action, page 6.) Nowhere does Kanemitsu disclose or suggest "for each of the individual areas, choosing an area background color based on the individual area; determining if the individual area contains image or text based at least in part on the chosen area background color" and "if the determination that the individual area contains image or text is not made, performing an additional action [including] marking the first individual area as an image area" as recited in independent claim 25. Accordingly, because the applied references, either alone or in combination, fail to disclose or suggest all the claimed features, the Section 103 rejection of claim 25 and associated dependent claims 26-29, 36, and 37 should be reversed.

iii. Independent Claim 31

Independent claim 31 recites, *inter alia*, "detecting a first area background color of the first area" and "marking the first area as a first image area based at least in part on the detected first area background color, the first area containing at least an image and the first area background color." Claim 31 also recites "detecting a second area background color of the second area" and "marking the second area as a text area based at least in part on the detected second area background color, the second area containing at least text and the second area background color."

The Examiner cites to the same portions of Koga as cited above with respect to claims 5 and 25 for disclosing these features of claim 31. (Final Office Action, page 7.)

Again, however, the Examiner is mistaken. As provided above, Koga does not disclose or suggest these features of claim 31. Koga discloses a method including extracting the background color from the character segments. Koga analyzes the character segments independently from and without regard to the background color.

Accordingly, Koga does not disclose or suggest "marking the first area as a first image area based at least in part on the detected first area background color" or "marking the second area as a text area based at least in part on the detected second area background color" as recited in claim 31. Koga cannot use the detected background color to mark the first area or the second area because the background image segment has been extracted, or removed from the character image segment before discriminating the image segment. It is only after extracting all background image segments that the image segments are discriminated to determine whether an image segment includes images or character. (Koga, Figure 2, step 3; see also Figure 11 and col. 14, lines 40–60.) Accordingly, Koga fails to disclose or suggest at least this claimed feature of claim 31, and the Section 103 rejection of claim 31 should be reversed.

Independent claim 31 also recites "if the determination that the third area contains at least an image or at least text is not made, marking the third area as a second image area." The Examiner mistakenly asserts that Koga discloses this feature. Koga does not disclose or suggest this feature; rather, as explained above, Koga describes that the image segmentation unit 3000 affirmatively makes a determination of whether an image segment pertains to a character or line drawing or a pseudo-half-tone for each image segment. (Koga, 17:3–8.) Because Koga describes actively, positively making such determinations for each image segment, Koga does not teach or suggest marking an area as an image area if a determination about the contents of the area is not made. Accordingly, for at least this additional reason, the Section 103 rejection of independent claim 31 should be reversed.

Kanemitsu is relied upon merely for disclosing halftone processing and cannot cure the above-noted deficiencies of Koga to support a proper Section 103 rejection of

claim 31. Accordingly, the Section 103 rejection of claim 31 and associated dependent claims 32, 38, and 39 should be reversed.

b. The Examiner has Failed to Show that There is an Apparent Rational Reason to Combine Koga and Kanemitsu, and has Thereby Failed to Establish a *Prima Facie* Case of Obviousness

The Examiner has further erred by not articulating an apparent reason or motivation to combine Koga and Kanemitsu to arrive at the features of claims 5, 25, and/or 31. To support a proper Section 103 rejection, the Supreme Court indicated that the Examiner should show that:

there was an apparent reason to combine the known elements in the fashion claimed by the patent at issue...[and that] rejections on obviousness grounds cannot be sustained by mere conclusory statements; instead, there must be some articulated reasoning with some rational underpinning to support the legal standard of obviousness.

(KSR, 550 U.S. at 418, underlining and bracketed information added.) More recently, on September 1, 2010, the USPTO has explicitly directed Examiners to:

provide a reasoned explanation as to why the invention as claimed would have been obvious to a person of ordinary skill in the art at the time of the invention. This requirement for explanation remains even in situations in which Office Personnel may properly rely on intangible realities such as common sense and ordinary ingenuity.

(Examination Guidelines Update: Development in the Obviousness Inquiry After *KSR v. Teleflex*, 75 Fed. Reg. 53643, 53645 (Sept. 1, 2010).)

In the present case, the Examiner has not articulated an apparent reason how or why a person of ordinary skill in the art would have combined and modified Koga and Kanemitsu to arrive at the claimed features. The Examiner's purported rationale for combining the teachings of Kanemitsu with teachings of Koga given in the Final Office Action is that doing so would "enable clear reproduction of an original document including mixed characters, ruled lines, and photos." (Final Office Action, page 7.) This statement is merely a statement of a stated advantage of Kanemitsu, taken nearly

verbatim from Kanemitsu's Abstract, which states "An image processing system for obtaining a binary signal from a multi-level signal read by an image scanner from an original document including mixed characters, ruled lines, and photos." (Kanemitsu, Abstract; emphasis added.) The Examiner's given rationale is therefore merely a recitation of an aspect of Kanemitsu. The Examiner's conclusory statement does not give a reason that a person of ordinary skill in the art would have combined teachings from Kanemitsu with teachings from Koga. If the Examiner is to contend that features from Kanemitsu would improve printing results by enabling clear reproduction if applied to teachings of Koga, the Examiner must provide a detailed explanation of how Kanemitsu's techniques would enable clear reproduction to improve the printing results. By merely reciting a stated benefit of Kanemitsu, the Examiner has failed to give any reason why a person of ordinary skill in the art would combine the teachings, and has failed to provide a detailed explanation of how the teachings could be used together. Because the Examiner does not set forth a rational apparent reason to combine the applied references, the Office Action fails to establish a *prima facie* case of obviousness. Accordingly, for at least this additional reason, the Section 103 rejection of claims 5, 6, 25–29, 31, 32, and 34–39 should be reversed.

2. The Rejection of Claim 7 Under 35 U.S.C. § 103(a) over the Combination of Koga, Kanemitsu, and Bearss is Improper

In the Final Office Action, the Examiner rejected claim 7 under 35 U.S.C. § 103(a) over the combination of Koga, Kanemitsu, and Bearss. Claim 7 depends from base claim 5. As discussed above, the Examiner failed to establish a *prima facie* Section 103 rejection of base claim 5 over Koga and Kanemitsu. The Examiner relied on Bearss for disclosing "a dithering process compris[ing] a sample mode dithering." (Final Office Action, page 10.) Without conceding that Bearss provides the teaching for which it was cited, Bearss nevertheless fails to cure the above-noted deficiencies of Koga and Kanemitsu to support a Section 103 rejection of base claim 5. Accordingly, dependent claim 7 is allowable over the combination of Koga, Kanemitsu, and Bearss for at least the reason that these references, either alone or in combination, fail to disclose or suggest all of the features of base claim 5 and for the additional features of

this dependent claim. Therefore, the Section 103 rejection of dependent claim 7 should be reversed and the claim should be allowed.

The Examiner has not also articulated a rational apparent reason to combine Koga, Kanemitsu, and Bearss to arrive at any of Appellant's claims, and has thereby failed to establish a *prima facie* case of obviousness. (KSR, 550 U.S. at 418 (citing *In re Kahn*, 441 F.3d at 988).) The Examiner's purported rationale for combining the teachings of Bearss with teachings of Koga and Kanemitsu given in the Final Office Action is that doing so would "improve the rendering of complex images embodying text, line art and/or halftone data." (Final Office Action, page 11.) This statement is merely a statement of a stated advantage of Bearss, taken verbatim from Bearss, which states "Accordingly, an object of the present invention is to improve the rendering of complex images embodying text, line art and/or halftone data. (Bearss, column 3, lines 45-47.) The Examiner's given rationale is therefore merely a recitation of an aspect of Bearss. The Examiner's conclusory statement does not give a reason that a person of ordinary skill in the art would have combined teachings from Bearss with teachings from Koga. If the Examiner is to contend that features from Bearss would improve the teachings of Koga and Kanemitsu, the Examiner must provide a detailed explanation of how Bearss' techniques would improve upon Koga's results. By merely reciting a stated object of Bearss, the Examiner has failed to give any reason why a person of ordinary skill in the art would combine the teachings, and has failed to provide a detailed explanation of how the teachings could be used together. Accordingly, for at least this additional reason, the Examiner has failed to establish a *prima facie* case of obviousness under Section 103 and the rejection of claim 7 should be reversed.

VIII. CONCLUSION

As discussed in detail above, the Examiner has failed to establish a *prima facie* case of obviousness for any of the claims on appeal for at least the following reasons: (a) the applied references, either alone or in combination, fail to disclose or suggest all the claimed features, and (b) the Examiner has not identified a rational apparent reason to combine the references in the manner recited in each of the pending claims.

Accordingly, Appellant respectfully requests that the Board reverse the Examiner's rejections of claims 5, 6, 25–29, 31, 32, and 34–39, and confirm the patentability of these claims.

Please charge any deficiency in fees or credit any overpayment to our Deposit Account No. 50-0665, under Order No. 320528295US from which the undersigned is authorized to draw.

Dated: October 20, 2010

Respectfully submitted,

By 

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CLAIMS APPENDIX**Claims Involved in the Appeal of Application Serial No. 10/765,061**

1–4. (Canceled)

5. (Previously Presented) A method, performed by a device having a processor, of detecting images and text in a master copy, the method comprising:

choosing a first background color from the master copy, wherein the master copy includes an image portion, a text portion, and an empty portion containing neither an image nor text;

condensing the master copy based at least in part on the first background color by omitting the empty portion to create a condensed copy of the master copy, the condensed copy containing the image portion and the text portion;

transversely and vertically dividing the entirety of the condensed copy into a plurality of first areas;

for each of the first areas—

choosing a second background color from the first area;

determining whether the first area includes the image portion or the text portion based at least in part on the second background color;

if the first area includes the image portion, marking the first area as an image area;

if the first area includes the text portion, marking the first area as a text area; and

if a determination that the first area includes the image portion or the text portion is not made, then either marking the first area as an image area, or—

replacing the first background color with the second background color;

condensing the first area based at least in part on the second background color;
transversely and vertically dividing the first area into a plurality of second areas; and
for each of the second areas—
determining whether the second area includes the image portion or the text portion based at least in part on the second background color;
if the second area includes an image portion, marking the second area as an image area; and
if the second area includes a text portion, marking the second area as a text area,
wherein at least one first area is marked as an image area in response to the determination that the at least one first area includes the image portion or the text portion not being made;
processing, by the device, the image areas with halftone processing;
processing, by the device, the text areas with line art processing; and
outputting the processed images and processed text as a whole.

6. (Previously Presented) The method of claim 5, wherein the halftone processing comprises a dithering process.

7. (Previously Presented) The method of claim 6, wherein the dithering process comprises a sampling mode dithering.

8–24. (Canceled)

25. (Previously Presented) A method, performed by a device having a processor, for identifying image areas and text areas in a document, the method comprising:

choosing a document background color based on the document;

creating a condensed document from the document by omitting areas based at least in part on the chosen document background color;
dividing the condensed document into a plurality of individual areas;
for each of the individual areas,
 choosing an area background color based on the individual area;
 determining if the individual area contains image or text based at least in part on the chosen area background color;
 if the determination is that the individual area contains image, marking the individual area as an image area; and
 if the determination is that the individual area contains text, marking the individual area as a text area;
 if the determination that the individual area contains image or text is not made, performing an additional action;
for at least a first individual area for which the determination that the first individual area contains image or text is not made, performing an additional action includes marking the first individual area as an image area;
processing, by the device, individual areas marked as image areas with halftone processing; and
processing, by the device, individual areas marked as text areas with line art processing.

26. (Previously Presented) The method of claim 25, wherein dividing the condensed document includes dividing the condensed document transversely and vertically into a plurality of individual areas, and the method further includes:

 for at least a second individual area for which the determination that the second individual area contains image or text is not made, performing an additional action includes:
 omitting sub-areas in the second individual area based at least in part on the chosen area background color to create a condensed area;
 dividing the condensed area into a plurality of individual sub-areas; and

for each of the individual sub-areas,
choosing a sub-area background color based on the individual sub-area, and
identifying the individual sub-area as containing image or text based at least in part on the chosen sub-area background color.

27. (Previously Presented) The method of claim 25, wherein identifying the individual area as containing image or text includes identifying the individual area as containing image or text based on bit depth distribution, the identified image area containing an image, the area background color, and the document background color, the identified text areas containing text, the area background color, and the document background color.

28. (Previously Presented) The method of claim 25, wherein choosing an area background color includes choosing an area background color that is different than the document background color.

29. (Previously Presented) The method of claim 25, wherein choosing an area background color includes choosing an area background color that is the same as the document background color.

30. (Canceled)

31. (Previously Presented) A method, performed by a device having a processor, for identifying an image area and a text area in an original document, the method comprising:

choosing a document background color based on the original document;
creating a condensed document from the original document by omitting areas based at least in part on the chosen document background color;

dividing the condensed document into at least a first area, a second area, and a third area;

detecting a first area background color of the first area;

marking the first area as a first image area based at least in part on the detected first area background color, the first area containing at least an image and the first area background color;

detecting a second area background color of the second area;

marking the second area as a text area based at least in part on the detected second area background color, the second area containing at least text and the second area background color;

determining if the third area contains at least an image or at least text;

if the determination that the third area contains at least an image or at least text is not made, marking the third area as a second image area;

processing, by the device, the first and second image areas with halftone processing; and

processing, by the device, the text area with line art processing.

32. (Previously Presented) The method of claim 31, wherein dividing the condensed document includes dividing the condensed document transversely or vertically into at least the first area, the second area, and the third area.

33. (Canceled)

34. (Previously Presented) The method of claim 5, wherein outputting the processed images and processed text as a whole includes faxing the processed images and processed text.

35. (Previously Presented) The method of claim 5, further comprising copying the master copy.

36. (Previously Presented) The method of claim 25, further comprising faxing the processed areas.

37. (Previously Presented) The method of claim 25, further comprising copying the document.

38. (Previously Presented) The method of claim 31, further comprising faxing the processed image area and the processed text area.

39. (Previously Presented) The method of claim 31, further comprising copying the original document.

EVIDENCE APPENDIX

No evidence pursuant to §§ 1.130, 1.131, or 1.132 or entered by or relied upon by the examiner is being submitted.

RELATED PROCEEDINGS APPENDIX

No related proceedings are referenced in Section II above; hence copies of decisions in related proceedings are not provided.